

CLAIMS

1. Passenger or cargo elevator or lift based on chains, counterweights and servomotors of the type that has a cabin that is transported vertically, differentiated because it involves:

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- at least one traction system composed of a set of traction chains;
- set of traction sprockets mounted on the shaft that run between two bearings and which is connected by means of a flexible coupling to at least one speed reducer of the planetary type to which at least one servomotor with a brake is (or are) directly connected;
- a set of upper tightening sprockets;
- at least one counterweight equivalent to the weight of the cabin plus 50% of the maximum load that is to be carried;
- a second set of descending sprockets that connect at least one counterweight with the lower part of the cabin;
- a second set of tightening lower sprockets firmly mounted on a shaft that revolves in the center of two bearings that are each supported by a structure anchored to the elevator pit;
- a third set of tightening lower sprockets that are mounted on a shaft that revolves in the center of two bearings that are firmly anchored to a structure placed in the elevator pit;
- a power and control system that consists of a programmable logic controller (PLC) that receives the signals that come from the call buttons both on the building floors, where the elevator is going to operate as well as from the call button control panel in the elevator cabin by means of a specially engineered operating program. This program executes the orders that flow into a motion controller of each servomotor which, with previously established parameters, commands each servo-amplifier to send electric power to the respective servomotor and its brake so that it can perform its previously assigned task;
- in addition it has an encoder mounted on the shaft of its corresponding servomotor; the encoder provides the control pulses and the feedback to the servo-

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amplifier and finally to the PLC which controls all of the functions performed by the whole traction system;

2. The elevator, according to Claim 1, characterized because it has two speed
5 reducers and upper traction servomotors coupled to the traction sprockets, that pull up the cabin or the elevator counterweights, having the elevator two identical traction systems, except that one of the motion controllers for the servomotors is of the master type and the other one of the slave type.
- 10 3. The elevator, according to the Claim No. 2, is characterized because one of its traction systems can be used as a back-up of the other one, so that the elevator can still be operated even if one of the motors has failed, by just modifying (slowing) operating velocities.
- 15 4. In accordance to the Claim No. 1, the elevator is characterized by four speed reducers and traction servomotors, two of which, the ones overhead are coupled to the first traction sprockets and the other two, below and coupled to the second set of traction sprockets that pull the cabin and the elevator counterweights upwards or downwards. The elevator has four identical traction systems except that one of the motion controllers is of the master type and the others of the slave type.
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- 25 5. The elevator according to the Claim No. 4, is characterized because one of the two traction systems can be used as back-up for the other two so that the elevator can be operated even if one or two of the driving equipment fails by only modifying (slowing) the operating speeds.

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